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Proceedings of the Industrial Developmen
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PROCEEDINGS OF

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INDUSTRIAL DEVELOPMENT BOARD

MEETING, Edson, Alberta, June 3rd and 4th, 1965

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PROCEEDINGS OF INDUSTRIAL DEVELOPMENT BOARD MEETING

EDSON - JUNE 3rd & 4th, 1965

The meeting was opened by Mr. R. Martland who introduced the Industrial Development Board members and guests. Guests, as well as Board members, were invited to take part in the discussions and participate in the programme.

His Worship W.R. Brunelle greeted the delegates on behalf of the citizens of Edson and wished them a successful and fruitful meeting.

Mr. Martland thanked the Town of Edson for the invitation to hold the Board meeting in Edson. In particular, he commended Mr. W. Mills, Industrial Representative for the Town of Edson, on the efficient manner in which he had handled local arrangements.

ARDA

The programme commenced with a panel discussion on the "Agricultural Rehabilitation and Development Act" which was led by Mr. Frank Belyea, Resource Development Co-ordinator, Edson.

Mr. S. Shields of the P.F.R.A. was the first speaker. Mr. Shields outlined a brief history of P.F.R.A. activities and developments which led up to the establishment of the original ARDA programme. Mr. Shields explained that in its inception, the ARDA programme had an agricultural orientation with particular attention being focused on such matters as alternate land use, soil and water conservation and rural development. After two years of operation, a new ARDA agreement has been assented to by all of the ten provinces. The new agreement has a five-year duration and the Federal Government has appropriated $125 million to finance ARDA projects. The emphasis of the new agreement is on total resource development. Research activities and other projects

related to resource development, will be financed under the new agreement. The role of the Federal Government is to make funds available for such projects with the initiative for the undertaking of these programmes being the responsibility of Provincial authorities.

Mr. V. Janssen, Farm Economics Branch, Department of Agriculture, is responsible for the supervision of the Census Division 14 Rural Development Study. Mr. Janssen elaborated on the work that has been done in collecting data on soil capability, resource analysis (minerals, agricultural potential and forest resources), recreation, capital structure, human resources, credit availability and farm income levels.

Mr. Ken Svensen, Rural Sociologist with the Farm Economics Branch, commented on human resources, leadership and education as being essential to a resource development programme.

Mr. Martland asked if copies of the completed report will be available for distribution. Mr. Janssen replied that they would.

Mr. Prudhomme asked if the ARDA authorities were concerned by the trend towards using good arable land for non-farm use. Mr. Shields replied that besides concentrating on the relocation of individuals from poor land, the programme emphasizes protecting good arable land and keeping it in production.

Mr. Weeres asked if financial assistance was confined to agriculture. Mr. Belyea replied that this emphasis is now on total resource development, including industrial, mineral, forestry and recreational development, as well as agriculture.

Mr. Belyea mentioned that a new ARDA brochure, which will describe the scope of the new agreement, is currently being published and will be available for distribution. Copies will be sent to Industrial Development Board members.

EMPLOYMENT OPPORTUNITIES FOR NATIVE PEOPLE

A panel discussion on the topic of "Employment Opportunities For Native People" was chaired by Mr. James Whitford, Director, Community Development Branch.

Mr. Clarence Johnson, Manager, National Employment Service Office, Edmonton, was the first speaker on this panel. Mr. Johnson outlined briefly the employment potential of northwestern Alberta, making particular reference to the development of primary industry and the demand for service and ancillary industries which follow such a development. Mr. Johnson mentioned that northwestern Alberta is in a stage of transition from agriculture to industry and there is a shortage of skilled workers. He stressed that the National Employment Service is not concerned with colour, race or creed but the qualifications of the individual seeking employment.

Mr. Murray Sutherland, Indian Affairs, Edmonton, outlined some of the problems and complications which face the Indian and Metis people in finding employment, and becoming assimilated into urban communities. There are approximately 22,000 Indians in Alberta living on reserves and approximately an equal number of Metis people. Very often geography separates these people from employment opportunities. Besides improving their mobility, they need to be trained and Mr. Sutherland felt that ARDA programmes, Federal manpower training programmes and the recently-announced Federal manpower mobility programme could do much to meet these needs. Mr. Sutherland said that the native people are one of the most seriously disadvantaged groups in Canada. However, he reported that many Indian people and Metis people have proved to be most satisfactory employees and have successfully made the transition into urban life in Alberta cities, towns and villages.

Mr. John Burch, Community Development Officer in Hinton, described the work that the Community Development Branch is attempting to do in assisting native people to find employment. Community Development Officers are attempting to channel native people into training programmes, thus enabling them to acquire skills which will make them more mobile, and qualify them for employment opportunities. The Community Development Officers are not employment agents but try to point out employment opportunities to native people and encourage them to take the necessary steps to be able to qualify themselves for the job opportunities. Mr. Burch stressed the necessity of removing the prejudice which exists in the minds of employers against native people. He said that unfortunately many employers have a stereotyped impression of the native employee and think of him as being unreliable. A change of public opinion is necessary.

Mr. Isaac Glick of the Mennonite Service Organization outlined what is being done by his organization in northern communities in the vicinity of Anzac and Calling Lake to encourage native people to develop local resources. Products such as wild berries, jams, jellies and handicraft items such as moccasins, muk-luks, souvenir blankets and birch bark souvenirs are being produced. Mr. Glick described the success with which the people in the Anzac and Calling Lake area had met so far. He stressed that Indian people have ingenuity and have exhibited that they can make considerable strides in manufacturing quality items. However, they require assistance in establishing a programme and guidance and assistance in marketing their products is needed.

Mr. Whitford summarized the panel by saying that the geographic gap, which separates the native people from job opportunities, must be bridged by equipping the native people with knowledge and skills required for job opportunities which exist.

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VOCATIONAL TRAINING ASSISTANCE FOR NEW INDUSTRY

The afternoon session began with Mr. C. Hogan of the City of Red Deer introducing Mr. J. Mitchell, Vocational Training Director of the Department of Education, who spoke on the activities of his Branch.

Mr. Mitchell commented on the training programmes offered by the Department of Education which include courses for youth in high schools and technical schools, and adult education designed to upgrade their level of skills. The courses for adults include small business training courses, specialized courses established at the request of industries such as pipeline welding courses and management, and supervision training courses which usually take place in evening classes.

Mr. Mitchell stressed that as far as industrial training was concerned, the purpose was not to subsidize industry under the guise of training. Rather, the Department felt they had a function to perform in providing training where the industry was unable to do so adequately. Mr. Mitchell stated that the Government is prepared to pay one-half of the training costs for employees of new manufacturing plants. He stated that his Department will entertain proposals from any new manufacturing plant and attempt to work out a training solution for them. Mr. Mitchell asked the group to inform him if there were any urgent cases where training was required, or the lack of training was an obstacle to the establishment of industry. He mentioned that in other parts of Canada, this situation was felt to be critical. The Maritimes was cited as a case in point.

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PRODUCT SPECIFICATIONS IN TENDERS

Mr. Elmer Ferguson of the City of Lethbridge acted as a chairman of a panel discussion on the topic of "Product Specifications in Tenders".

Mr. A. Preston, representing the Provincial Department of Public Works, outlined in detail the Public Works Department procedures for specifying materials and products which are used in public buildings. Mr. Preston stressed that the Provincial Government tenders never say "equal" but use the term, "approved alternate". This means that, any firm not listed in the tender may apply to the Chief Architect of the Department of Public Works to be approved as an alternate and thus have the opportunity of quoting on the materials or supplies required. The Department of Public Works tenders do not refer to trade names for materials and supplies such as concrete, lumber, plywood, brick, glass, etc., but go by the Canadian Standards or A.S.T.M. Standards. Government specifications are designed to be broad and open to all bidders. Regular standards such as Architectural Woodworks Standards, Canadian Government Specification Board Standards or Alberta Forest Products Association Standards are used.

Mr. R.F. Bouey, President of the Alberta Architects Association, explained that private enterprise architects act on behalf of clients and the private architects' specifications are often more narrow and specific in order to serve the needs of the client and keep his costs to a minimum. Often specifications may specify particular manufacturers and not allow equals. They may offer the option of specifying alternates. This procedure leaves the door open for other-than-low bidders to get tenders and sometimes reduce the total cost through economies which may be thus effected. Nevertheless, the majority of architects do give preference to Alberta-made and Canadian-made products if they can satisfy their needs. Mr. Bouey explained

that it is commonplace for architects to have consultants prepare the specifications for mechanical and electrical contracts and thus the specifications for these products are produced by the consultants. Mr. Bouey stressed that information available to architects comes by way of sales people who show them sample products and provide them with the results of tests and analysis which deal with the properties of the products.

Mr. Martland asked what could be done to dispel the lack of knowledge which exists about products being made in Alberta. Mr. Bouey replied that he felt it was the responsibility of industry to promote their own products and to inform the architects through samples, catalogues, etc., of the products which are locally available.

POLLUTION CONTROL

The chairman of the final panel for the afternoon was Mr. Allan Gunter of the City of Medicine Hat. Mr. Gunter introduced Mr. Harvey Hogge, Provincial Sanitary Engineer, who spoke to the meeting on the subject of "Pollution Control - Hindrance or Help to Industrial Development". Mr. Hogge's talk, in its entirety, is contained in the appendix.

INDUSTRIAL HEALTH SERVICES

Mr. Gunter introduced Dr. H. Siemens, Industrial Health Services Director of the Department of Health, who spoke on the subject of the "Industrial Health Services Programme". Dr. Siemens' presentation is contained in the appendix.

Mr. C. Ross asked if air pollution regulations were the same in Calgary as in Edmonton. Mr. Hogge replied that they were; the only difference

in regulations was between cities of less than 50,000 population and cities of over that population figure. Aside from smoke regulations, the same regulations pertain throughout the Province. In cases of industries, which emit toxic or noxious gases, each of these were handled individually. In answer to a question from Mr. Ross regarding differences of climatic conditions and altitude, Mr. Hogge mentioned that temperature differential investigations in Calgary were being undertaken. He also said that the standards for industries were established in 1961 and the industries were given five years to comply with them.

In answer to a question regarding control of rivers, Mr. Hogge explained that the Athabasca and North Saskatchewan Rivers were receiving regular attention and checks were being made frequently.

PROGRESS REPORTS

EXPO '67

Mr. H. Martin, Director of Publicity for the Province of Alberta, spoke on Expo '67 stating that it will be a recognized international trade fair. The four western provinces will participate jointly in the establishment of one pavilion at the Fair. Persons visiting this pavilion will pass through experience capsules in which will be displayed the resources of western Canada. Sight, sound and smell will all be used to depict the resources and their environment. A landscape plaza will surround the display building and this plaza will be used to illustrate the expressive art and cultural development of western Canada.

Mr. Martin stressed that the literature factor will be minimal at a display of this type. It is expected that 90% of the attendance will be drawn from an area within a vicinity of 600 miles from Montreal. Planners

estimate that 40 million persons will visit the Fair with the average person making three visits to the Fair. Attendance from western Canada is estimated at 125,000 persons.

Fifty-one foreign countries have signed up for participation in Expo '67. Another thirty countries are listed as being probable participants. Over seven hundred Canadian companies will share in the Canadian participation.

CAPSULE PIPELINING

Mr. John Gregory, Head, Industrial Engineering Services, Research Council of Alberta, outlined the progress that has been made by the Alberta Research Council in conducting investigations into the movement of solid capsules in a pilot pipeline facility at the Research Council. Mr. Gregory explained that they had done as much work as they could in the laboratory. The next step in the research programme was to experiment with a scale-up model. Support had been sought from firms interested in capsule pipelining and industry had so far committed $1,250,000 towards this research. The total cost of establishing a scale-up pipeline station and operating it for five years would be approximately $5 million. Negotiations are presently going on with the Federal Department of Industry in an attempt to secure their assistance for the major portion of the cost of this project. Provincial participation is also expected.

Mr. Gregory also commented upon the new Alberta Research Council pilot plant which is under construction in the industrial area to the east of Edmonton. Mr. Gregory informed the meeting that Peace River Mining & Smelting Co. Ltd. will lease these facilities to carry out further research on a hydro-metallurgical process for extracting high grade iron powder from iron ore. It is expected that the pilot plant will be completed November 30, 1965.

CENTENNIAL RESOURCE ATLAS

Mr. D.I. Istvanffy, Director, Alberta Bureau of Statistics, spoke on the subject of the Centennial Resource Atlas which is being produced by the Provincial Government under the direction of the Geography Department, University of Alberta, Edmonton. The Atlas will attempt to pictorialize all available statistical information on the Province in order that a reader may get a visual impression of Alberta and its resources. The Atlas will cover subjects such as history, climate, population, income, manufacturing and resources such as agriculture, minerals, forest products, fish, etc. It is expected that the Atlas will be approximately 150/200 pages and will cost approximately $100,000 to produce. The selling price will be in the range from $7.50 to $10.00 per copy. Present plans are to have it completed in 1967.

FINANCIAL ASSISTANCE TO INDUSTRY

Mr. John Fleming, Managing Director, Alberta Commercial Corporation, distributed copies of a new brochure entitled, "Financial Assistance to Industry". Mr. Fleming drew the attention of the group to a section of the brochure which contains advice on how to proceed in making an application for financial assistance. This information had been requested by Board members at a previous meeting. Anyone requiring additional copies of the brochure is invited to contact Mr. Fleming direct at Room 341, Highways Building, Edmonton.

FOOD SYMPOSIUM

Mr. I.R. Huene, Supervisor of Market Research, reviewed the proceedings of a Food Symposium held recently at the Northern Alberta Institute of Technology. He mentioned that the objective of the meeting had been to

focus attention on important subjects such as food costs, quality control, the role of science and technology in improving quality, and quality and the consumer. Approximately 125 persons attended the meeting. As a result of expressions of opinion by the delegates, another conference is being scheduled for Calgary next March at the Southern Alberta Institute of Technology. The next meeting will have as its theme, "The Food Processor and the Consumer".

Mr. Huene briefly alluded to an ARDA-supported fresh vegetable study which he is working on with Mr. Ken Porter of the Farm Economics Branch. This study is designed to assemble all available information relative to the fresh vegetable industry in Alberta and to supply information that may be lacking on this subject. Mr. Porter and Mr. Huene will be visiting growing areas of the United States this summer to gather additional data on this subject. It is expected the report will be completed in eighteen months.

GENERAL DISCUSSION

Mr. Oberholtzer explained that, due to the visit of Governor General Vanier, the Hon. A.R. Patrick was unable to attend the meeting. Mr. Oberholtzer expressed the Hon. A.R. Patrick's regrets at not being able to be present.

Mr. Martland announced that the Industrial Development Branch will establish an industrial development and tourist promotion office in Montreal late this fall. This office will serve eastern Canada and the northeastern United States. Industrial Development personnel from Alberta will be invited to make full use of this office when it becomes operational.

Mr. Martland also stated that the Department is planning a Trade Mission to the United States. The Provincial Government will assist with the transportation costs of the Mission members. The export of Alberta-made

products and efforts to arrange manufacturing licensing agreements will be the main emphasis of this Mission. The Chairman mentioned that, although at the last Board meeting members were invited to submit names of individuals who they thought would be qualified to represent Alberta industry on such a Trade Mission, he had yet to receive a name from any Board member.

On behalf of all Board members, Mr. Martland expressed to the Secretary of the Industrial Development Board sincere appreciation for his work in past Board meetings. Mr. L.D. Robinson of the Los Angeles office and Mr. Wm. G. Brese will be exchanging places in August.

Mr. Oberholtzer announced that a Development Conference will be held in the Town of Peace River on October 5th and 6th. Brochures describing the agenda for the meeting will be available at the end of July.

Mr. Keith Easson of the Northern Alberta Development Council made reference to an economic survey prepared by Mr. R.N. Harvey and informed the group that copies of this report would be available sometime after July 15th. Those interested in receiving a copy of this report should write to Mr. Easson at Neil D. MacLean Building, Grande Prairie, Alberta.

Mr. E.H. Parsons, Director of Economic Development, Calgary Power, speaking on behalf of invited guests, said that they enjoyed and profited from the meeting and wished to thank the Board for the privilege of attending.

Mr. Martland thanked Mr. W. Mills, Industrial Representative, Town of Edson, for the excellent job he had done on local arrangements. Mr. Martland instructed the Secretary to write letters of appreciation to the Mayor of Edson and the Edson Chamber of Commerce.

The motion to adjourn was made by Mr. J. May and seconded by Mr. A. Gunter.

APPENDIX

MR. H. HOGGE

Director,
Division of Sanitary Engineering,
Department of Health.

TOPIC: "Pollution Control - Hindrance or Help to Industrial Development"

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DR. H. SIEMENS

Director,
Industrial Health Services,
Department of Health.

TOPIC: "Industrial Health Services Programme"

"POLLUTION CONTROL - HINDRANCE OR HELP TO INDUSTRY"

by Mr. H. Hogge

From the viewpoint of a single industry, the answer to this question would, I am sure, be 'hindrance'. Pollution control is an 'outside' requirement or bit of red tape which necessitates devoting a considerable amount of time on the part of management, professional and technical staff and/or specialized consultants. Also it adds to both the initial and operating costs of the plant without proportionate increase in production. There are many examples of pollution control operations which have led to money-making operations such as the chemical fertilizer industry at Trail, B.C., and the production of sulphur from sour natural gas and refinery gases. However, there are also many examples of pollution control operations which have not produced anything useful, in fact very often they produce large quantities of unusable material which presents a real disposal problem. An example of this is close-by at Hinton where waste pulp fibres, knots, etc. are settled out of the waste waters. Another case is that of the chemical fertilizer plant making phosphate fertilizer, for every ton of fertilizer produced, about five tons of gypsum are also produced. This takes up space and involves expenditures in handling, which would not be required if pollution control and civil law did not prohibit dumping this material in a river or directly onto the next-door neighbor's property.

The distinction between 'help' or 'hindrance' becomes less clear-cut where you consider more than one industry in a single location or environment. Each industry will require air and water of a usable quality, or at least of a quality which can be made usable with a reasonable degree of treatment, and also they will require an environment which is not excessively corrosive. Air quality is normally not critical in process or cooling use,

however, excessive dust and corrosive gases can severely increase maintenance of electrical and control equipment and also the cost of maintaining the exterior of plant buildings and equipment. In one case in Alberta a relatively large supply of white decorative bricks became discolored and a neighboring lead reclaiming operation was suspected of contributing to the condition. Water is much more frequently a problem to industry; excessive grease, dissolved solids, hardness, silica, chlorides, color, organic chemicals, bacteria and slime organisms can add to the cost and problems of operating a plant quite significantly.

The line of distinction between 'help' or 'hindrance' must still remain gray, rather than distinctly black or white when one considers only the industries' viewpoint. In fact, I can't help but feel that I am hedging just a bit, and should say that from an industrial operations point of view, particularly the heavy or primary industry, pollution control is quite heavily weighted to the hindrance side. It would be cheaper for industry as a whole to increase air and water treatment rather than control pollution to the point where only normal treatment was required.

At this point one, particularly the industrial person, must seriously question the advisability of practising pollution control. It increases operating and capital costs and this increased cost does not yield a reasonable rate of return on the investment, therefore don't do it, certainly management should be popular at the stock holders' meetings.

However, there must be some reason for controlling air and water pollution, many parts in Canada, the United States and countries throughout the world have spent much time and money studying and controlling this pollution. The answer lies outside the immediate industrial areas of consideration. There are spectacular examples of what polluted air and water can do.

In air pollution we think of the Los Angeles smog, the London fogs, the Donnora, Pennsylvania and Meuse Valley, Belgium episodes, and the international incident of the Trail smelters. In water pollution we think of the Ohio River, the Mississippi, the Chicago ship canal, the Thames and the St. Clair Rivers. However these are from far-off, old, heavily-populated, and industrialized areas, it couldn't happen here - - - - - or could it? - - - -

Alberta is changing, in 1941 the population was 796,169 with 250,605 in urban areas, the electricity used was 370 million KW Hrs., there were 126,127 motor vehicles, the value of manufactured goods was 142.7 million dollars and that of refined petroleums and chemicals 15.4 million dollars. In 1961, the population was up 67.3% to 1,331,944 and the urban population up 240% to 851,576. (The rural population of the Province decreased 12% during this period). The electricity used was up 706% to 2,985 million KW Hrs., motor vehicles up 304% to 509,298, the value of manufactured goods was up 555% to 933.8 million dollars and the value of refined petroleums and chemicals up 987% to 167.3 million dollars. These are impressive percentage increases, 240, 706, 304, 555, 987 and certainly they illustrate the modern trend of industrialization and urbanization.

Unfortunately the rate of air movement over the urban areas is not increasing proportionately, nor is the flow in the rivers. In the winter of 1953-54 the North Saskatchewan River became polluted to the extent that the dissolved oxygen was reduced to zero and the taste and odor of industrial wastes was strong at The Pas in Manitoba, 700 miles away from Edmonton. Pollution control work by the City and industries in the area, co-ordinated by the Provincial Board of Health, reduced the pollution load so that the tastes and odors largely disappeared and some dissolved oxygen was present. In 1961, the Brazeau Dam was completed and the stored waters released during the winter season to give flows of 2,000 cfs. rather than the normal 1,000 or

less. However, by last winter the pollution load had again increased to the point where dissolved oxygen was reduced dangerously low and tastes and odors started to be noticeable. The Bow River, the Oldman and the Athabasca Rivers are also significantly affected by polluting materials and to an ever increasing extent. Greater treatment of waste waters released to these rivers is going to be required on all of these rivers in the near future in order to preserve the general usefulness of the waters in them.

In air pollution control, the development of the urban areas, particularly Calgary and Edmonton has increased the amount of air pollution and also increased the density of development. The latter has been particularly significant for some industries because the development in their immediate vicinity has been residential, so that no longer do they have open fields in which odors and dusts can dissipate.

In rural areas, the neighbors are not as close, generally a distance of one mile can be arranged between the larger industries and the residence of farm families. This is certainly helpful in allowing dispersal of dusts and gases before they reach the residence, however for larger industries and for those industries having a large odor potential, careful control is still necessary. Some of the sour gas processing plants are relatively large as to the amount of sulphur they produce and there are quite a few of them. In 1964, the total production of sulphur in Alberta was 1,471,000 long tons; this is an average of 4,030 tons per day, which is a lot of sulphur. The efficiency in recovering sulphur in these plants is usually 90 to 95%, however even a 5% loss means 202 tons of sulphur per day and this is released to the atmosphere as sulphur dioxide. If it were released as hydrogen sulphide, the odor nuisance and other objectionable aspects would be severe. As sulphur dioxide, it is much less odorous and less hazardous and the conversion from H_2S to SO_2 has to be done at 1,000 °F which assists in the dispersion of the gases.

This approach to pollution control in this industry has been reasonably successful; the concentration of the gases has been monitored closely by the companies and ourselves and they are below the level which would be expected to cause damage to agricultural or forest crops or pose a threat to the health or safety of people. The build-up of sulphur in vegetation is being checked and compared to tree growth rate and again conditions still appear satisfactory. There have been some complaints by persons residing near a few of these plants, chiefly about odor, although other factors such as irritation of eyes and nose, paint and silverware discoloration, and effects on crops and livestock have also been mentioned. Certainly the need for careful control of air pollution from this type of industry is essential in order to avoid adverse effect on neighbouring properties and to ensure the safety and comfort of persons residing in the area.

In summary, I would submit that whether it is either a help or hindrance to industry, pollution control is essential for our expanding economy and population. Rigid and arbitrarily stringent pollution control measures are not defensible, but reasonable standards which will still ensure protection to neighbouring properties whether they be commercial, industrial, agricultural, forest, residential or recreational and also of the health and safety of people, are necessary and must be considered an essential part of our modern society.

"THE INDUSTRIAL HEALTH SERVICES PROGRAMME"

by Dr. H. Siemens

The recent rapid increase in industrialization of Alberta prompted the decision to organize in the Department of Public Health a Division of Industrial Health Services in 1963. Considerable sampling equipment and a laboratory have been assembled and are located in the 100th Avenue Building at 10405 - 100th Avenue, Edmonton. We are now equipped to sample and analyze a variety of industrial dusts and fumes, determine their concentration and predict their effects on those exposed to them. Similarly a large variety of vapours and gases can now be sampled, identified and their effects in known concentrations detailed. In this manner it is possible to measure many hazards peculiar to given industries, and help to reduce them where necessary to concentrations not injurious to health, or determine what measures or devices are required to protect the health of the worker.

Demand for these services is considerable and its increase will determine the growth of our staff and facilities. When one considers that 80% of our 1300+ industries employ less than 26 workers, and only about 5% employ over 100, it becomes obvious that there are few plants large enough to make it feasible for them to retain occupational health and hygiene services. This is a problem even in the highly industrialized provinces and in other countries.

The object of the Division of Industrial Health Services is to make available to any industry on request, the means of identifying the problem, assessing the effects and directing efforts toward its elimination, modification, or toward the use of effective protective devices.

Several recognizable factors are operative in many of our industries which result in undesirable situations conducive to suboptimal performance.

Here one may mention:

1. The use of buildings which happen to be available but were never designed to accommodate the industry which they house.
2. Under capitalization resulting in crowding as production and diversity of processes increase. Extension of space seldom keeps pace with production. Piecemeal extensions are often not satisfactory.
3. Home design of a plant without adequate awareness of the special needs for special processes - e.g. isolation areas for toxic dusts, fumes and gases, excessive noise, special ventilation requirements, sanitary facilities, etc.

Much more could be said here. A facility offering consultative services and assistance to the prospective operator to ensure that the accommodation is suitable or adaptable to the processes contemplated could avoid much trouble, expense, waste and failure.

As stated before, the object of my Division is to:

1. Identify the cause of possible harm,
2. Find ways to remove or modify it,
3. More than this, we must be ready to ascertain the effects a hazardous trade has already had on the health of the worker, and,
4. If harm has been done, assess the extent of the harm.

For example, men exposed for some years to dusts containing free silica tend to develop a lung fibrosis that may in time impair the efficiency of their lungs, cripple them and sometimes kill them. In such industries we must determine the concentration of silica in the dusts breathed, find the means of eliminating such dust by replacing the free silica with a harmless substance or devise means of reducing the amount of dust to tolerable concentrations. More than that, the workers who have been exposed for years must be periodically X-rayed and the efficiency of their lungs measured in order to determine their capacity for work and successful living.

Other dusts that cause fibrosis are coal, asbestos, diatomite, aluminum, talc, cotton, etc. For all of these Threshold Limits Values have been determined. Even for inert, or so called "harmless dusts" limits are established beyond which they are likely to interfere with effective breathing. Some dusts may be irritating or poisonous, sometimes both; others may cause allergic reactions.

Gases and Vapours

Concentrations of these are expressed as parts per million. They may have various effects on the worker exposed to them - such as irritation to the lungs, skin and mucous membranes, they may cause asphyxiation or depressed breathing, interfere with gas exchange of the blood, narosis, etc.

Again the determination of concentration, methods of control, and possibility of substitutions are important because some of these gases act rapidly, kill quickly in small amounts or cause irreversible ill health. Others produce a state of continuing unwellness during exposure. A few cause lung fibrosis on continued exposure at levels which used to be considered harmless.

The Effects of Noise on Hearing

Increased mechanization of industry, speed of production, etc. have resulted in the production of more noise in industry. The effect is reflected in larger numbers of workers suffering hearing loss as a consequence of occupation in high noise areas. Claims for loss are received by Insurance Companies and the Workmen's Compensation Board and have been honoured.

A survey to measure levels of loudness of noise in various plants in Alberta leaves no doubt that we have numerous plants with excessive noise that does and will produce hearing loss in workers. This has been confirmed by measuring the loss of acuity of hearing of exposed workers.

My Division is prepared to do noise level determinations on the request of management where noise is considered to approach harmful levels. A crude measure of such levels is present where difficulty of communication is recognized. An area where you have to shout loudly to be heard by the man next to you is excessively noisy, or your friend has already suffered considerable hearing loss. The final decision whether harmful levels of noise are present depends on:

1. The levels found with the use of a noise level meter.
2. The length of time per day the worker is exposed to it.
3. The pitch of the noise.
4. The susceptibility of the worker to noise.

The exposure to noise can be controlled by:

a) Reduction in the amount of noise produced.
b) Reduction of transmission of noise.
c) Revision of operational procedures.

Where none of these measures result in adequate control to protect the worker, personal protection may be necessary through the use of:

1. Ear protectors.
2. Education and indoctrination of the worker.
3. Periodic checking of hearing acuity of the worker.

Where considerable noise is thought to be present a reasonable precaution can be taken by having audiograms done about the time a worker is taken on. This is a most valuable record to keep for reference. If he already has faulty hearing the evidence is produced and his present employer should not have to take responsibility for loss incurred in former employment.

Most rural Health Units have audiometers and would generally be agreeable to furnish an examination that would indicate any necessity for further examination.

Mention must be made of vapours, fumes, liquids and solids which cause skin troubles, probably the most common medical condition attributable to occupational exposure. These may be:

1. Infections resulting from the handling of foods, animal and vegetable products.
2. Irritation of the skin exposed to substances that irritate the skin - such as acids and alkalies, solvents and materials that result in excessive drying of the skin.
3. Sensitization as a result of some glues, resins, metals and chemicals which cause the worker to become so sensitive that extremely small amounts produce intolerable and incapacitating reactions.
4. Certain substances like arsenic and asphalt can result in new growths of the skin.

All cases of skin affections in industry need to be examined with the possibility in mind that something in the industry may be the cause. Where this component can be identified the problem can usually be resolved.

Occasionally it is found that plant waste products in the form of dusts, fumes, gases and vapours, etc. constitute a problem in disposal and sometimes provoke the attention of the Division directed by your last speaker. In numerous instances where it is found that great savings can be achieved and even revenue can be produced by the extraction and marketing of such wastes should encourage us to examine such possibilities. In many such instances the programmes of the air pollution authorities could be thus furthered to our mutual satisfaction.

The Workmen's Compensation Board and its safety staff as well as other safety councils and public health authorities have been effectively active in the occupational hygiene field for years. Our Division regards itself as complimentary to rather than as a competitor of these bodies.

I have attempted to indicate the fields in which my Division is active and will be more active. Our services will be given largely in response to requests for help to define problems, identify causes and effects and assist in the solution of troublesome situations. We regard ourselves in no sense as inspectors or law enforcement agents. We will be active in drafting regulatory controls where these are indicated. We intend that this may be done after consultation and with the knowledge and concurrence of other agencies and the industries affected.

We hope that the time may not be far when facilities may be available and used to provide sound guidance in the construction of plants designed and built specifically for specific processes; also that leases of properties not suitable for the purposes intended may be deferred until the tenant can be fully informed of difficulties that may result from their use.